



Next Meeting Sunday 8th August Belviour Guides Hall, 6 Silva Drive West Wodonga



Remembrance Day Contest 14th & 15th August 2021

<https://www.wia.org.au/members/contests/rdcontest/>

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VK3CH Amateur Television Preparations for DATV QSO Party

With VK3RTV going to the new DVB-S/S2 – DVB-T2 format, new ways to watch VK3RTV are needed. Many cheap set top boxes get the new S2/T2 format such as Strong SRT 5434 and Vmade C5 HD Combo T2&S2. I got the Vmade C5 HD Combo on EBay for \$32 posted, so cheap. Both run off 12 volts.

Programming the KPT-716S/T

Satellite Memory for local DVB-S Transmission – The four ATV 23cm Simplex Frequencies for Melbourne

LNB Power	OFF
Select LNB Frequency	OCS1 (5150/5750)
22K	Off
DiSeqC 1.0	Off
DiSeqC 1.1	Off

DVB-S	1246 MHz	4000 Symbol Rate	3904/H/4000	Intermediate Frequency 3904
DVB-S	1255 MHz	4000 Symbol Rate	3895/H/4000	Intermediate Frequency 3895
DVB-S	1278 MHz	4000 Symbol Rate	3873/H/4000	Intermediate Frequency 3873
DVB-S	1287 MHz	4000 Symbol Rate	3863/H/4000	Intermediate Frequency 3863

Selection of frequency calculator: LNB Frequency – Intermediate Frequency = Rx Frequency
LNB → Low Noise Block down-converter

The KPT-716S/T is a seven inch screen domestic television and satellite receiver.

This was found on EBay by members of the Melbourne ATV users group for about \$150 posted.

It receives DVB-T commercial TV stations, DVB-S 23cm TV signals and VK3RTV to the new DVB-S/S2 – DVB-T2 format.

It can be used as another TV to monitor either received VK3RTV stations, or your own signals in the shack, or as a receiver for point to point simplex ATV contacts.

Or watching satellite programs if you have the appropriate dish and feed.

It has HD camera input for use as a monitor, or a USB memory drive can be plugged in to view photos.

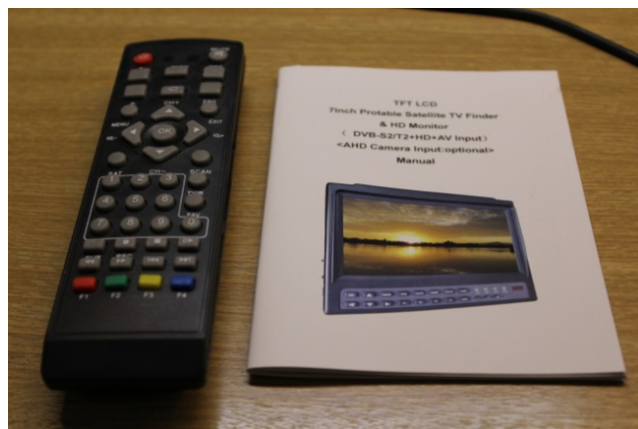
While monitoring my own DVB-S signals in the shack no antenna was required, which makes me wonder how much 23cm signal is floating about in the air, hopefully it is getting into the unit via the power leads.

Powered by 12 volts it has its own plug pack but can be powered by 13.8v so portable operation is possible.

This saves a power hungry TV when setting up portable ATV from a park.



KPT-716S/T showing channel data



Another remote and manual for the collection



The KPT-716S/T and shack TV on VK3RTV, notice the slight difference in screen delay

Strong SRT 5434

This is a locally sold unit that has a software patch for amateur radio allowing programming on 445.500MHz for VK3RTV. It will receive the new DVB-T2 format out of the box. Unit does not have satellite reception. You can record to a USB from the unit or play video or photos from the USB to your TV or monitor. It has both CVBS and HD output. It is very small, not much room needed on the bench, about \$50



Vmade C5 HD Combo T2&S2

Another set top box ready for the new DVB-S/S2 – DVB-T2 format, very small, \$32 posted.
Good for commercial TV, VK3RTV, scans 445.500MHz, also with satellite reception.



Programming the four ATV 23cm Simplex Frequencies for Melbourne into Vmade C5 HD Combo

Selecting **USER** in the satellite band allowed the unit to find me on DVB-S locally in the shack.

I selected an LNB Frequency of 5150 from the list.

I selected power off for the LNB and left all other settings as they were.

I added four new satellites to channel memory and named them each 1246, 1255, 1278 and 1287.

A **blind scan** was then done for each one in turn, transmitting on the appropriate frequency and saved them.

Sat Link WS-6906

Sat Link WS-6906 is another satellite receiver I have previously reviewed in September 2019 NEVARC News.

This will receive DVB-S signals in the 23cm band and is good for either local signal monitoring or DVB-S simplex ATV operation for receive.

Operating off 12 volts makes it handy for portable use. What I like is you can port the output to a monitor or TV via its CVBS output.

Another EBay find \$83 posted – an absolute bargain for what it does.



Improved Shack Lighting – Soft Box

Shack lighting for television always needs improvement.

I have lots of strip LED lighting but that is only on one side of my face.

Another lamp on a stand with a soft 7 watt LED tube helped, but as it is pointing at your eyes, it gets tiring after a while.

It was suggested to me by another Melbourne ATV group operator, that I try what is called a Soft Box. This is a light on a stand that has a white screen to disperse the light behind it, used for photography studios.

Another search of EBay and it arrived in just three days, two units on stands, all for \$48 posted. That's right – two of them.

They assemble very easy, the stands support the weight but I would still put something on the rear leg to be certain. They are height adjustable.

Soft Box showing 25 watt LED lamp before front cover in place →





One of the soft box lights behind the shack main ATV dome camera

UNINTENDED SURPRISE

While doing the frequency of 1246MHz with one of the set top boxes, I thought I was watching the set top box on the screen but realized I was watching VK3RTV1 on the TV.

All of a sudden I was able to get into VK3RTV1 direct, something I had never done since moving house. This was due to the new receivers that Peter Cossins had put in, ready for the DVB-S/S2 – DVB-T2 upgrades. These must have more sensitivity than the previous ones.

It was cloudy and no rain so my ability to get into VK3RTV1 on 1246MHz may be only available in better weather, I will need to watch rain conditions and see how it goes. It does not work well at night.

The results for VK3RTV1 input of 1246MHz, before the strip line modification;

SR Level	Power (watts)	Current	-----Results with VK3RTV1-----	
			Daylight	Night
0	0	2.1 (idle)	No (well, duh...)	
1	0.08	2.8	No	No
2	0.2	2.8	No	No
3	0.4	2.9	No	No
4	0.6	3.0	No	No
5	0.95	3.1	No	No
6	1.3	3.2	No	No
7	1.8	3.3	No	No
8	2.0	3.4	No	No
9	2.5	3.6	No	No
10	3.0	3.7	No	No
11	3.5	3.9	No	No
12	4.5	4.0	Not reliable, on edge, intermittent	No
13	5.0	4.2	Not reliable, on edge, intermittent	No
14	5.5	4.3	Yes perfect, most of the time	No
15	6.4	4.5	Yes perfect	Yes, but intermittent

POWER DIFFERENCE WITH FREQUENCY - DVB-S TELEVISION TRANSMITTER – “A”

With the discovery of just being able to get into VK3RTV1 on 1246MHz, the PA output levels favour the high end of the 23cm band. The PA is the main SR-Systems TX Unit RA18H1213G Mitsubishi RA series module to produce up to 18 Watts output on the 23cm 1240 to 1300MHz band.

Power levels to get into VK3RTV are shown with success in green and unable to access VK3RTV in red.

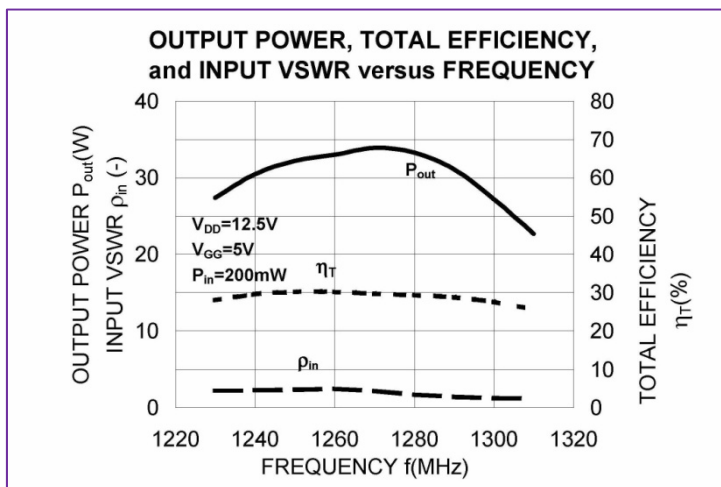
DVB-S Transmitter “A”	Power (Watts) 1246MHz VK3RTV 1		Power (Watts) 1255MHz Simplex		Power (Watts) 1278MHz VK3RTV 2		Power (Watts) 1287MHz Simplex	
	Before PA Modified	After PA Modified	Before PA Modified	After PA Modified	Before PA Modified	After PA Modified	Before PA Modified	After PA Modified
1	0.08	0.15	0.15	0.3	0.3	0.6	0.018	0.31
2	0.2	0.35	0.35	0.7	0.7	1.5	0.4	0.8
3	0.4	0.7	0.65	1.4	1.4	2.5	0.8	1.5
4	0.6	1.1	1.1	2.0	2.0	4.0	1.13	2.2
5	0.95	1.7	1.5	3.0	3.0	5.5	1.75	3.2
6	1.3	2.1	2.0	4.2	4.0	7.0	3.0	4.4
7	1.8	3.0	2.75	5.5	5.5	8.5	3.25	5.5
8	2.0	3.5	3.5	7.0	7.0	9.5	4.5	6.5
9	2.5	4.5	4.5	9.0	9.0	10.5	5.4	7.5
10	3.0	5.5	5.5	10.5	10.5	11.0	6.4	8.5
11	3.5	6.5	6.5	12.5	12.25	11.6	7.8	9.2
12	4.5	7.8	8.0	13.2	14.0	12.2	9.4	9.8
13	5.0	9.0	9.5	14.5	15.5	12.8	10.5	10.2
14	5.5	10.25	11.0	15.0	16.5	13.0	11.8	10.6
15	6.4	11.5	12.5	16.0	17.5	13.5	13.0	11.1

I could experiment with a “snowflake” on the PA output line on the PCB to shift the resonant frequency down the band, to lose a bit at 1278MHz, which I can afford to do and increase 1246MHz.

This way I would be able to use either VK3RTV1 or VK3RTV2 as required, a future project to attempt.

But the specifications of the RA18H1213G show peak power at around 1270MHz. Any “snowflake” would need to be inside the module, not really keen to mess with its insides.

Another way is removing some of the attenuation in the drive from the SR-Systems board, but then the protection from overdrive on higher end of the band is lost.



TESTING ALL THREE SR-SYSTEMS DVB-S TELEVISION TRANSMITTERS

As I have three SR-Systems DVB-S Television transmitters, I forget the actual makeup of each one. Before I alter the tuning of the final PA in the main unit, it would be a better idea to see what the output is on all four frequencies of 1246MHz, 1255MHz, 1278MHz and 1287MHz of the other two units.

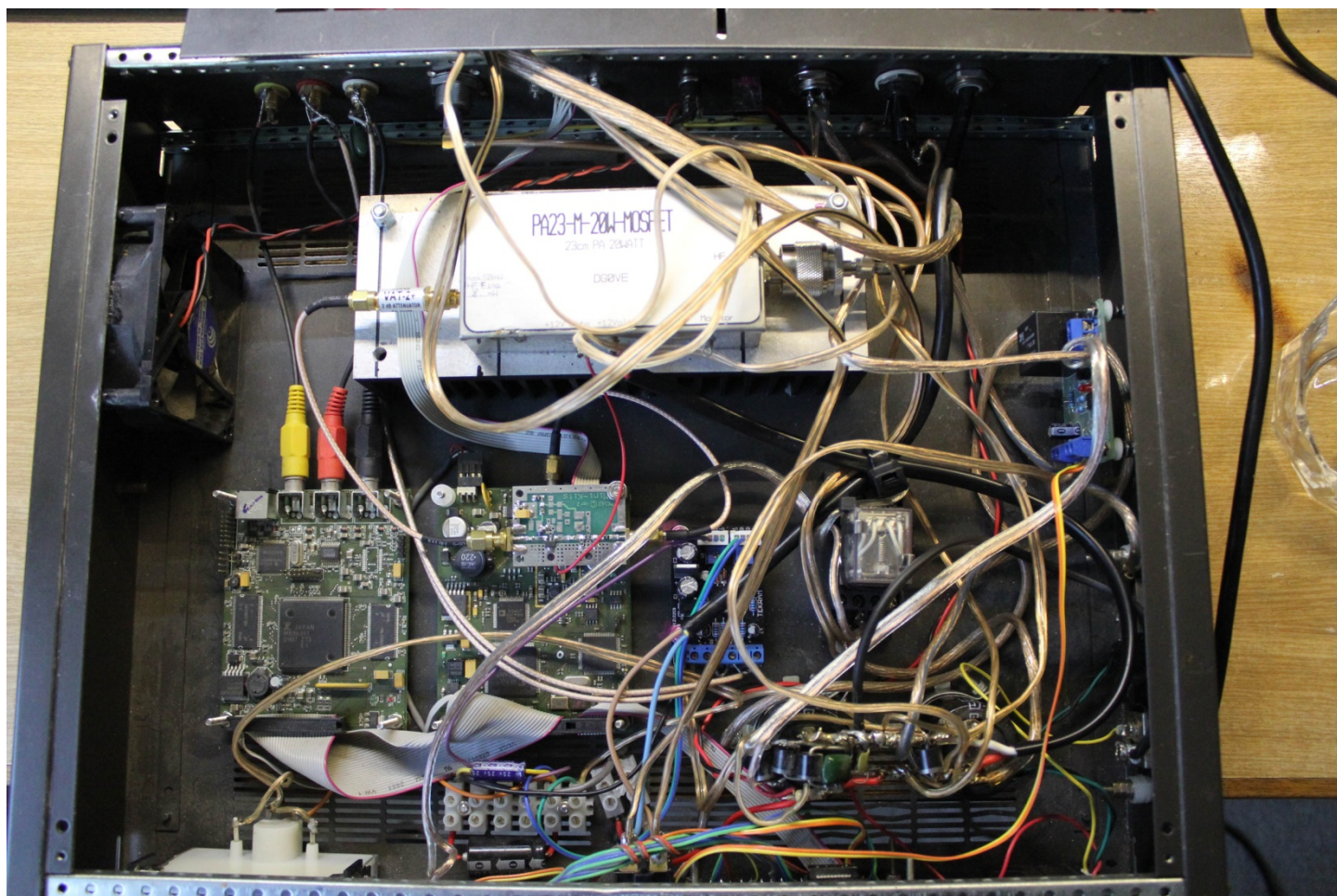
To make it an equal comparison using the same cross needle VSWR meter and 23cm beam. My main DVB-S transmitter is mains powered, the other two are 13.8 volt DC used for portable. It was time to “name” them transmitter A, B & C and document the differences and performance between them.

TESTING SR-SYSTEMS DVB-S TELEVISION TRANSMITTER – “A”

Starting with the current mains powered unit this is now designated DVB-S Transmitter A. As I have already tested this unit, the power levels are on the previous page.



DVB-S Transmitter ‘A’ with updated front label



DVB-S Transmitter ‘A’ internal view



This transmitter has the DG0VE RA18H1213G 20 watt PA with 2db attenuation in the feed



The PA has strip line tuning in the output.
This might be open to alteration, to move the centre frequency down by 20 MHz.



After modification, added three small lengths of copper wire, noting frequency response each time
Each wire added had a diminishing return, so it was left at three additions

The improvement was the most on 1246MHz, exactly the frequency I wanted to boost.
Maximum power on 1246MHz has increased from 6.4 watts to 9.5 watts.
Frequency of 1255MHz has had a major boost as well, maximum power up from 12.5 watts to 16 watts.

But after telling Peter Cossins he said *“The strips at the output will be some sort of filter. Don’t mess around with them. You may have just increased the second harmonic.”*
So it was time to put it back to its original state.

Peter suggested “What you need is parallel capacitance to ground. (Very small) Also check the bias line ... it will be set for SSB ... get the bias in up to at least 4.8 V.”

A scrounge of the junk box found a small variable trimmer capacitor. Checking the type and purple colour, I found an exact image on the Jaycar site, where I bought it years ago.

It was an 8.5pF-100pF Trimmer Capacitor, worth a try.



Trimmer installed and tuning wires removed

THE RESULTS

Adjusting the capacitor the signal on 1246MHz was peaked with about 20% increase in signal. The peak frequency had been lowered on 1278MHz. The output was lower across the higher frequencies, well below the maximum 18 watts.

This transmitter has a 2db attenuator feeding into the final PA. With the lower levels across the range, but nearly equal frequency response I decided to remove the 2db attenuator and see the response, about another 20% increase in signal. At the lowest levels it was seen that the PA would not be overdriven.

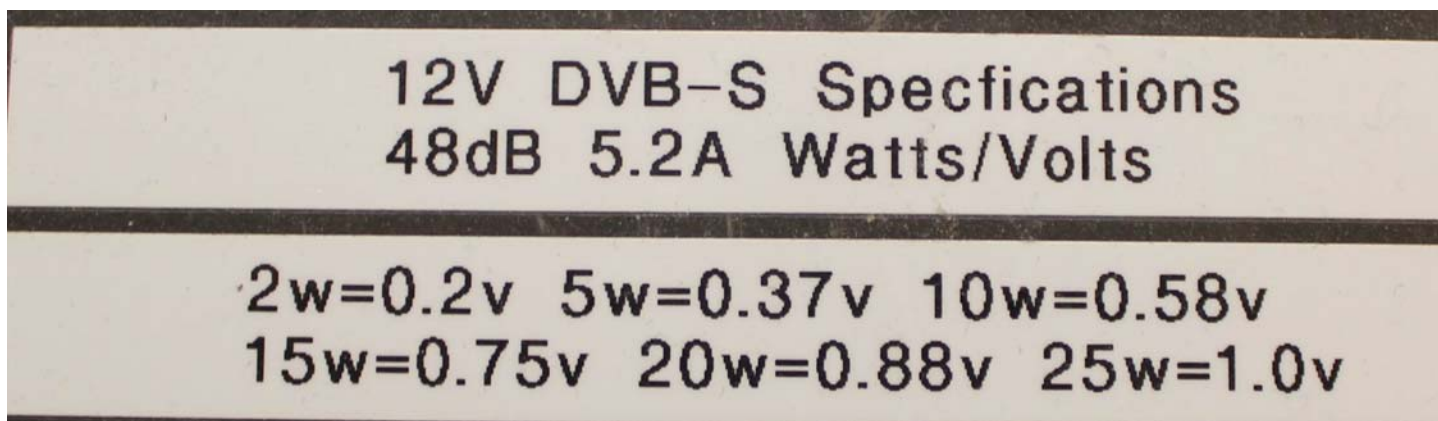
The results are in the chart the highest levels are better across the range.

Frequency	Before modification	Install of trimmer capacitor and removal of 2db attenuation
1246 MHz	6.4 watts	11.5 watts
1255 MHz	12.5 watts	16.0 watts
1278 MHz	17.5 watts	13.5 watts
1287 MHz	13.0 watts	11.1 watts

A perfect result, with enough power to get into VK3RTV1, even at night with higher moisture content in the air and enough power to get into VK3RTV2, which does not need much power, six watts sufficient at 1278 MHz.



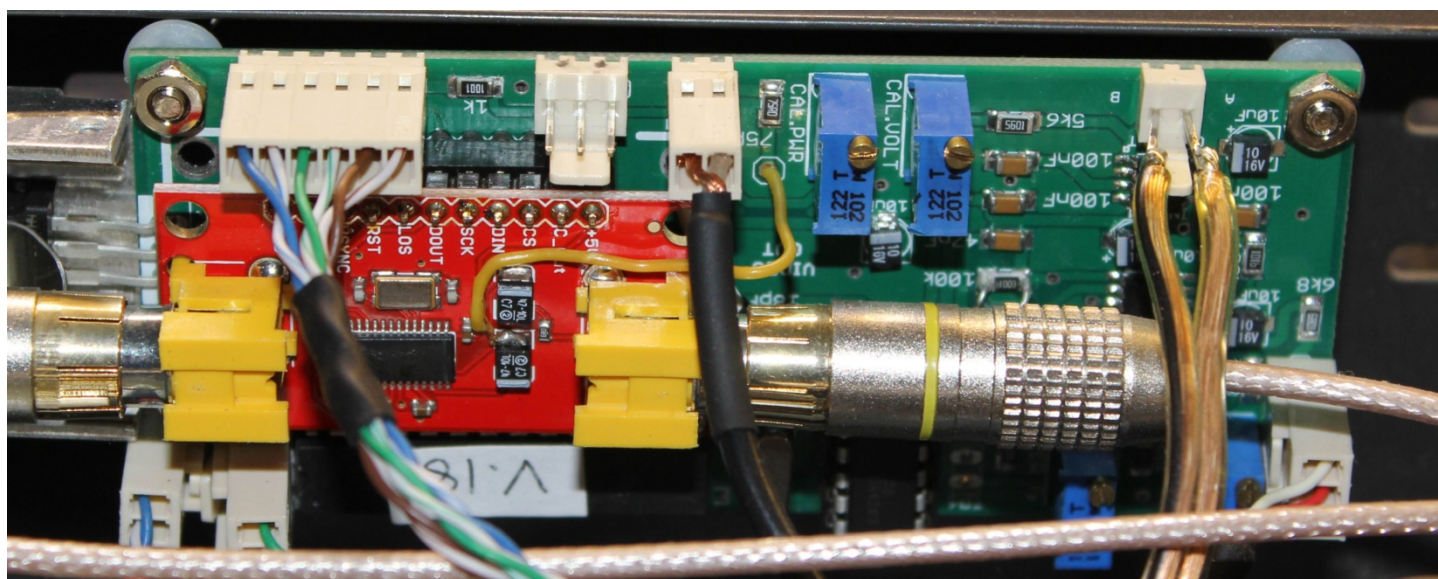
Front panel



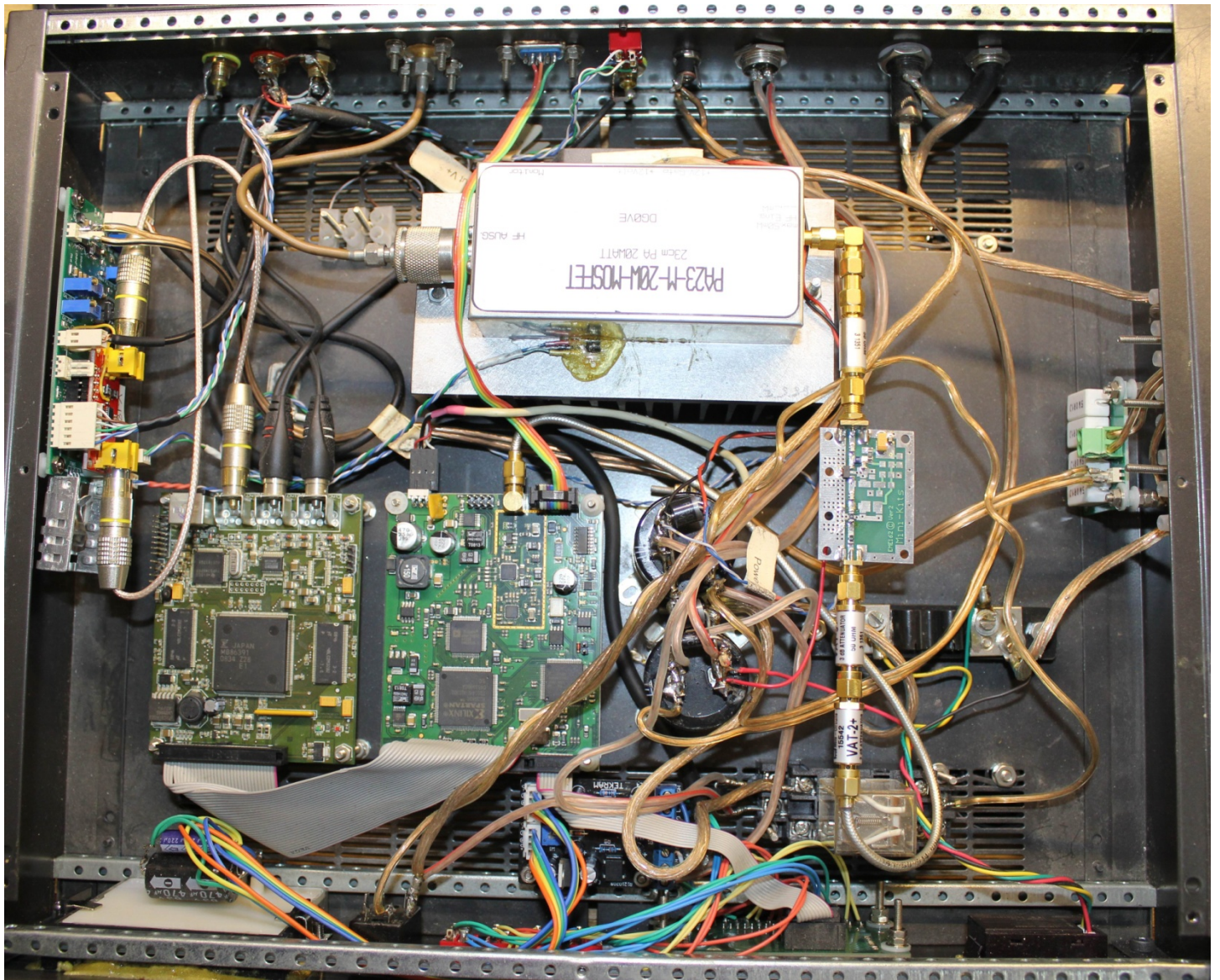
Specifications on top cover



Rear of transmitter



This transmitter has the EMDRC On Screen Display unit installed



DVB-S TELEVISION TRANSMITTER – “B”



This transmitter has the DGOVE RA18H1213G 20 watt PA

TRANSMITTER 'B' POWER LEVELS

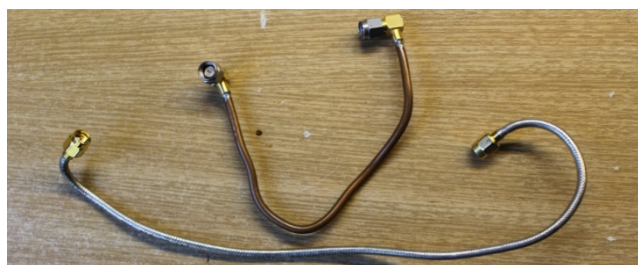
SR-Systems Level	Power (Watts) 1246MHz VK3RTV 1	Power (Watts) 1255MHz Simplex	Power (Watts) 1278MHz VK3RTV 2	Power (Watts) 1287MHz Simplex
1	0.01	0.01	0.05	0.02
2	0.01	0.01	0.05	0.03
3	0.01	0.01	0.05	0.03
4	0.01	0.01	0.05	0.03
5	0.01	0.02	0.05	0.04
6	0.01	0.05	0.1	0.04
7	0.01	0.25	0.45	0.18
8	0.1	2.0	3.5	1.5
9	3.5	6.0	9.0	4.5
10	5.7	10.0	11.0	6.8
11	7.0	12.0	13.0	8.5
12	8.0	13.0	14.0	9.0
13	9.0	14.0	14.25	9.1
14	9.5	14.5	14.5	9.6
15	10.5	15.5	15.0	10.0

While testing the levels for each of the main four frequencies they kept randomly changing.

Wriggling things found the levels jumped about with movement of the hard lines.

Both of the offending hard lines were replaced with new ones.

Space is tight and a right angled SMA adapter was used to get clearance from a nearby PA heatsink near the SR-Systems modulator board.



The two suspect hard lines replaced



Bag of spares sourced from Hamfests and Minikits



Spare SMA connectors, always handy

Transmitter "B" has more output on 1246MHz than "A" so this unit is good for both VK3RTV1 & VK3RTV2, at least from the home location.

As things were working well, it was decided to leave it alone.

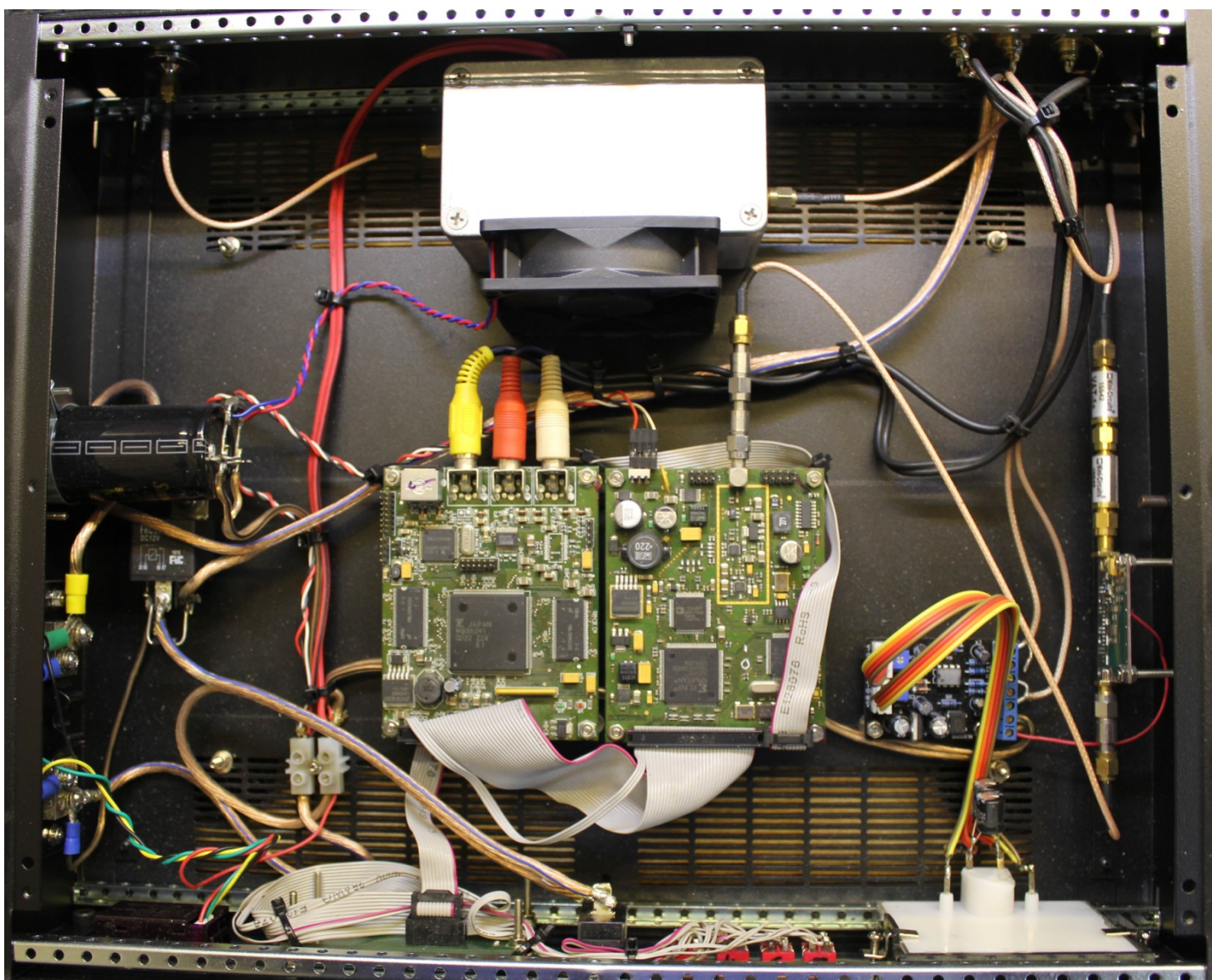
The covers were put back and it was returned to the shelf, a perfect transmitter for portable, time to find a suitable site.



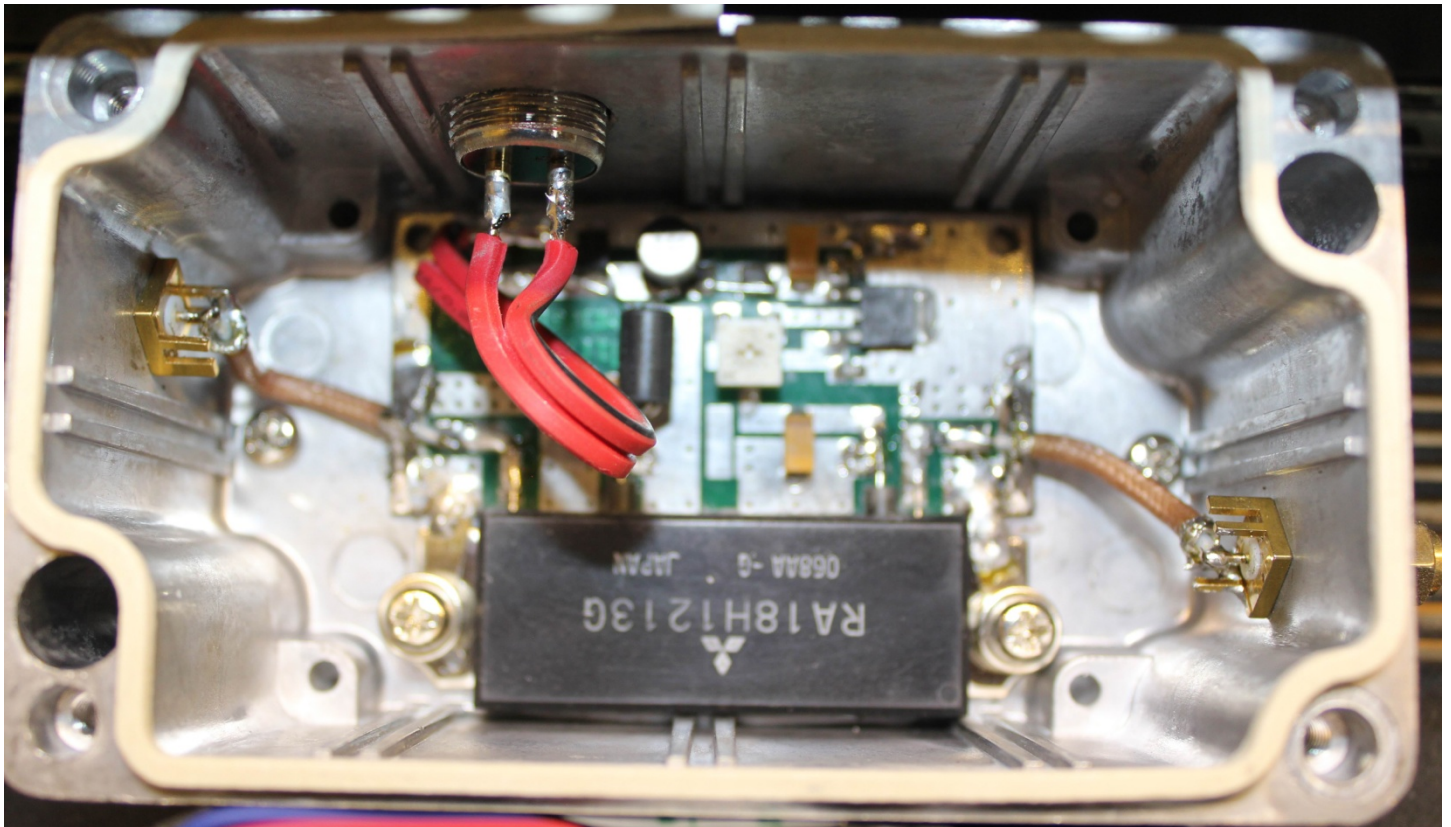
Front panel



Rear panel



DVB-S TELEVISION TRANSMITTER – “C”



This transmitter has the Minikits RA18H1213G 20 watt PA

This is a basic transmitter built for portable use.

It has reverse voltage protection.

It does not have the remote switching to place the SR-Systems transmitter board on stand by.

The PA needs better cooling as it gets too hot.

Any heatsink I want inside the case to save bits sticking out if that is possible.

I have not fired up this unit for ages and when I did the output was very weak.

I suspect the PA is oscillating as some signal was seen even with the SR-Systems in stand by mode.

So another repair / modify project when I have time and money.

At least this one has some attenuators to alter, should that become necessary later.

So the 'audit' of all the Television Transmitters is done, one good thing about writing them up and putting them in the NEVARC News is I can find them later when I forget what I did years later.

VK3RTV DVB-S S2 / DVB-T2 TESTS

Emails from Peter Cossins to the Melbourne ATV Users Group during April to June informed the progress;

VK3RTV will be the only Repeater in Australia with DVB-S/S2 uplinks AND a multiplexed DVB-T2 output. All DVB-S or DVB-S2 feeds will be HDMI to the HD Encoders via one HDMI Switch and one HDMI Splitter. One of the outputs of the Splitter will go to the BATC Streamer which also is a very much improved quality, with thanks to Phil. Remember when we go DVB-T2, your old Set Top Boxes will be no longer functional.

During Melbourne COVID-19 lockdown Peter had a multiplexed DVB-T2 8K (can go up to 16 K according to menu) signal running in the shack, finally after new settings from Stefan and a new IDC cable made here on instructions. The plan is to set it up here through my 60 watt 70cm amplifier into an 88 Element J Beam. Peter held a sked on Sunday 6th June and was able to run it on demand until it is installed at Mount View.

Peter had to re-scan for the signal and then the Set Top Box (Strong) decided it was a new station so the program system showed VK3RTV1 and VK3RTV2 twice.

Not many stations, including myself, could copy the simplex signal, but one station did reporting a perfect HD picture from Peter VK3BFG. These tests were done in June, during COVID lockdown.

BACK YARD STUDIO PREPARATION

After all the work last year there was not much to do.

A check was done to make sure no critters had eaten through any cables, all good.

The main task seems to be what video to put up on the day.

With so many set top boxes to choose from and growing number of them, labelling every remote was done, so the right one is paired for the device it controls, I am loosing track of how many remotes I have.

So each remote was labelled underneath to the device it controls.

GETTING READY TO RECEIVE DVB-T2 IN THE SHACK

I thought about getting a television that receives DVB-T & DVB-T2 and there are a few about.

Some were found for under \$300 but closer inspection of the specifications saw the screen resolution was not Full HD.

Many televisions, while they can get 445.500MHz, are locked out by software, as many televisions only have the Australian channels preset and refuse to have 445.500MHz entered manually.

In the end I gave up and decided on replacing my current 12 volt TV with a Full HD monitor, fed off the Strong Set Top Box. It is a bigger screen that looks good in the shack, just the right size as I sit close to it.

But the sound is tinny, so the audio feed from the Strong Set Top Box is fed to a pair of computer speakers to get better sound.

This way the audio signals can be intercepted and an auto muting circuit can be added as all the smart muting was part of the old TV.

I ended up buying an Acer 27" (KG271D) 75Hz 1ms Free Sync Full HD Monitor for \$209
Monitors are cheap compared to a few years ago.



The new 27 inch monitor with the old 12 volt TV lying in front of it as a size comparison

One thing I have found with monitors and televisions for that matter are they don't display transmissions from VK3RTV properly unless you have the Picture Aspect Ratio set to "Auto".

If you don't set to Auto on the Strong Set Top Box you get these annoying black sides in a square picture. But even on Auto I get a 1cm black bar on both VK3RTV 1 & VK3RTV 2, but it's not that noticeable.

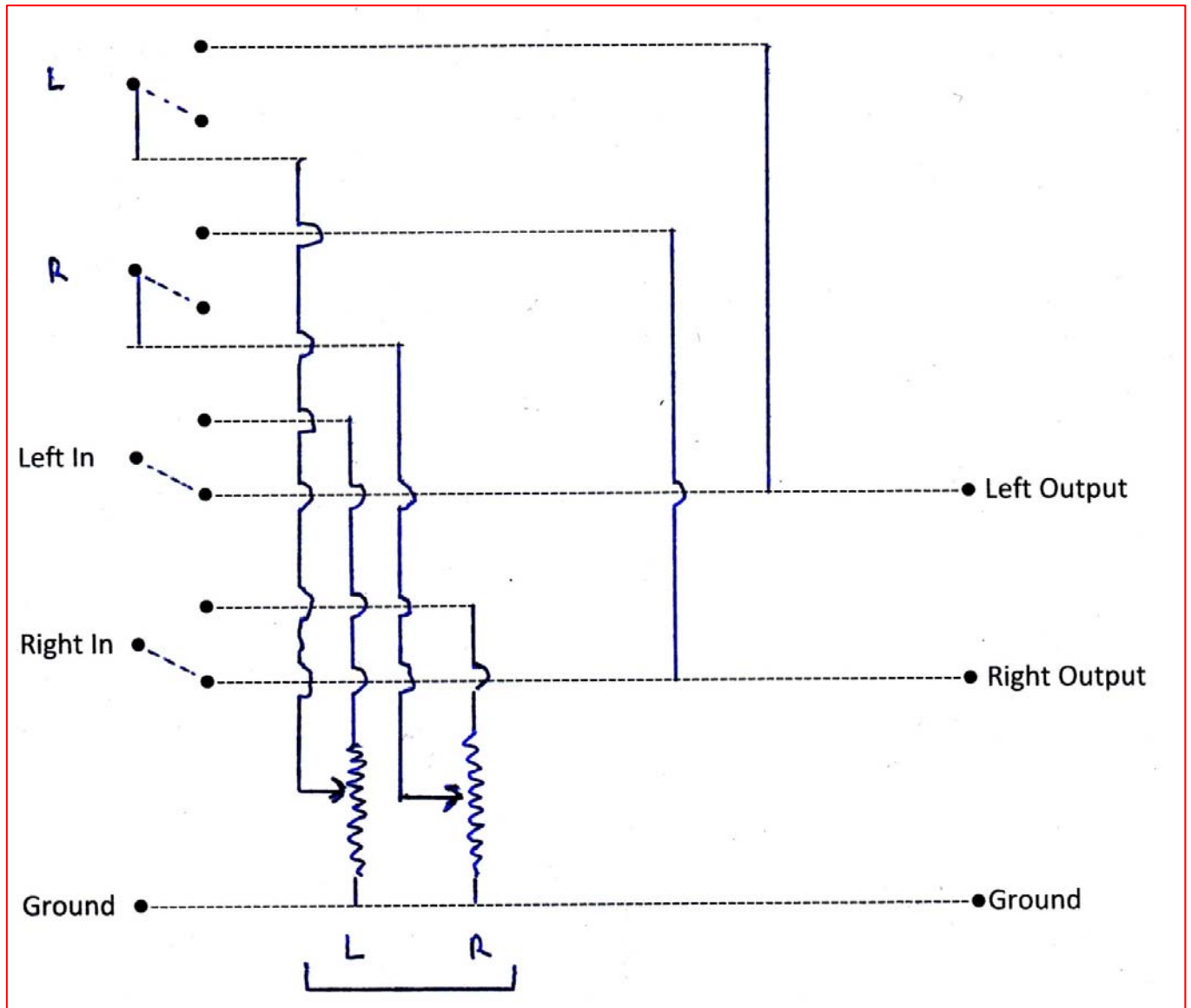


The annoying black bars down the sides, with the wrong settings on the Strong Set Top Box

NEW AUTO MONITOR MUTING – VIA RCA LEADS FROM SET TOP BOX TO MONITOR

With the audio via HDMI cable, other than a software control solution, I can't readily adjust the sound levels. The monitor audio is crap, so I decided to use computer speakers instead. The set top box will output audio both on the HDMI and CVBS outputs simultaneously. So RCA leads going to a pair of Bose computer speakers, with a bass sub woofer, gave perfect sound.

To auto mute the audio on ATV TX, I devised this circuit, activated by the SR-Systems going into transmit.



Dual 10kΩ log

The potentiometer is a dual ganged 10kΩ log to set the muting level, fed via 0.1μF capacitors. Once set this level would be left alone. It can be switched out when playing an audio file from the PC or other source when you want to hear the transmitted audio.

A 12 volt DPDT relay switches as default non ATV operation of passing the audio through. Dotted lines show relay default non-activated.

On pass through the resistance of the 10kΩ potentiometer and its 10kΩ loading, is not in line with the audio. On ATV TX the relay picks up, bringing the 10kΩ potentiometer into circuit with the appropriate muted audio levels passed through to the monitor from the set top box.

AUTO MONITOR MUTING CONSTRUCTION

Building stuff is usually fun, but has its hassles. The potentiometer does not come with a nut and washer, so I had to scrounge to find some. Also the relay base has no schematic of where the relay contacts match up with the base screws, tracing with an ohm meter sorted that. I have no workshop, drilling is done by holding the metal box with my feet and drilling to avoid going through the box into my shoes and eventually my feet.

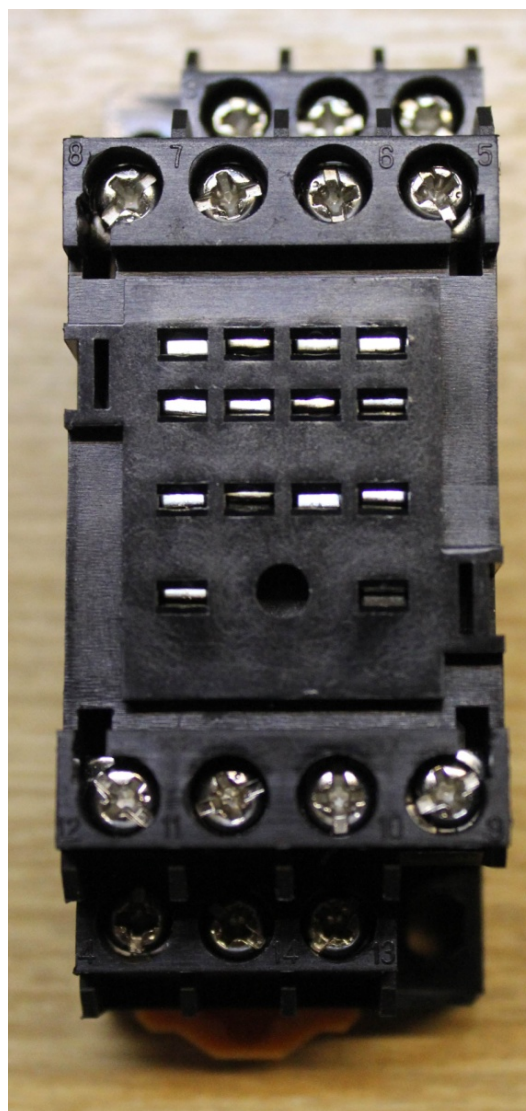


All the bits to make it

Relay Base Schematic

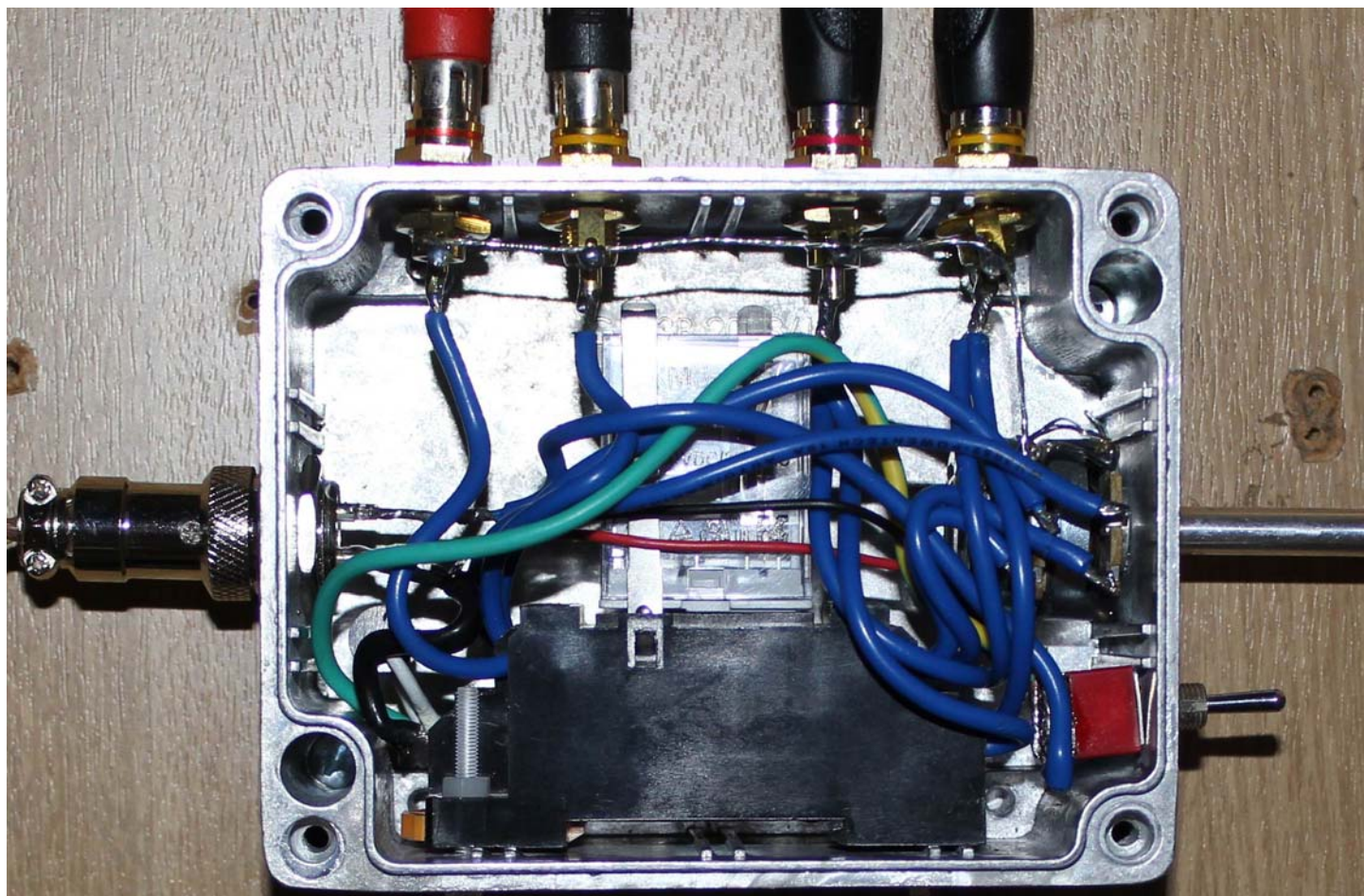
3	2	1	Base Screws	
8	7	6	5	Base Screws
—	—	—	—	Normally Closed
4	3	2	1	
—	—	—	—	Normally Open
8	7	6	5	
—	—	—	—	Centre Contact
12	11	10	9	
—	14	13	—	Relay Coil
12	11	10	9	Base Screws
4	14	13		Base Screws
[Locking Tab]				

Relay Base Schematic



Relay Base with numbers

Testing involved setting the levels while transmitting, with no transmission the set top box is sent direct to the monitor. Muted lowers the audio to the monitor on ATV TX and Passthrough bypasses the unit for when I want full audio, such as when playing video files from the computer. This project was completed in June.



The finished unit mounted under the bench, the box is grounded to audio ground, no hum picked up, despite not using shielded audio cable



Front with the selectable muting or passthrough, as audio level is “set and forget”, I did not bother with a knob
~Mick VK3CH

Ferrite Success

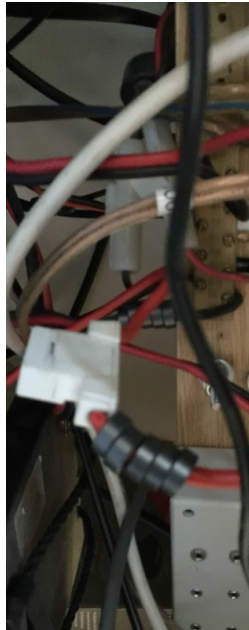
For years when transmitting on 100 watts on 2 meters my TV would be blotted out, 100 watts at close range will do that. Ferrite beads have been placed in various leads over the years with limited success but have never fully allowed TV reception, especially VK3RTV, when transmitting on 2 meters.

Ferrites have been placed on;

- Transmitter DC leads
- Set Top Box Power leads
- 13.8volt DC bus bar leads
- Television DC leads
- 13.8 volt DC Supply mains lead



Set Top Box filter



Transmitter filter



Transmitter DC Leads



Bus Bar filter

But I decided on placing ferrites on the lead from the commercial and VK3RTV receive beam feed into the masthead preamplifier box, now I can run 100 watts on 2 meters, with perfect television reception.



Just two ferrite beads in the right place make all the difference, may add more if needed in future

I have been trying to fix this problem for years, success at last... good stuff.

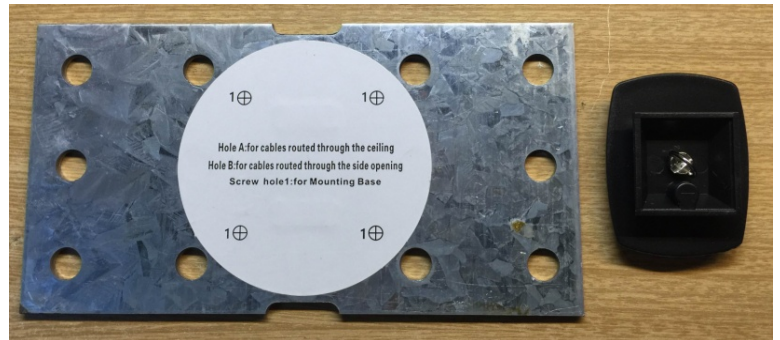
~Mick VK3CH

Dome Camera Stand

While the Full HD Camera fits on any tripod stand, having a wide angle dome camera on a tripod stand is a handy thing, especially portable for quick simple item that can be packed for portable transport. If it gets a bit damaged with rough treatment it did not cost as much, compared to a good HD Camera.

The dome cameras mount flat so a suitable way of getting them to go on a stand was needed. A metal plate was drilled to accept the camera and a large size quick disconnect camera stand was used, another find on EBay. The dome cameras come with a stick on drilling guide, very handy →

After some drilling it was ready to test.



← Mounted dome camera

It is a basic setup, but at under \$50 it can be used outside or in the rain and if it gets knocked about, better than an expensive camera at risk.

Its wider view range good for general capture of the action.

It is video only, so an audio source is still required, a microphone could be added to the camera plate.

Handy for when I need to show something in the shack that is not readily in view of the main shack camera.

It is only SD CVBS video but good enough for general use.

~Mick VK3CH

All about DVB-T2

Digital Video Broadcasting - Second Generation Terrestrial

DVB-T2 is the next development of the Digital Video Broadcasting - Terrestrial standards.

It builds on the technology and on the success of DVB-T to provide additional facilities and features in line with the developing DTT or Digital Terrestrial Television market.

Although some may see DVB-T2 as a competitor to the existing DVB-T standard, this is not the case; it is planned that the two standards will co-exist for many years, with DVB-T2 allowing additional features and services.

DVB-T2 basics

The DVB-T2 standard uses Orthogonal Frequency Division Multiplex as the basic radio transmission medium. This form of transmission is particularly robust and allows for the reception of data signals (in this case television data) in the presence of some interference or missing channels as a result of effects like multipath.

Note on OFDM

Orthogonal Frequency Division Multiplex, OFDM is a form of signal format that uses a large number of close spaced carriers that are each modulated with low rate data stream. The close spaced signals would normally be expected to interfere with each other, but by making the signals orthogonal to each other there is no mutual interference. The data to be transmitted is shared across all the carriers and this provides resilience against selective fading from multi-path effects.

The new DVB-T2 specification provides the facility to select a variety of different options to match the requirements of the network operator.

For error correction technology, that used for DVB-S2 has been incorporated. This comprises LDPC (Low Density Parity Check) coding combined with BCH (Bose-Chaudhuri-Hocquengham) coding. The combination of these two techniques has been proved to provide excellent performance in the presence of high noise levels and interference.

As before, several options are available in areas such as the number of carriers, guard interval sizes and pilot signals, so that the overheads can be minimised for any given transmission channel.

DVB-T2 specification highlights

PARAMETER	DVB-T	DVB-T2
Number of carriers in signal	2k, 8k	1k, 2k, 4k, 8k, 16k, 32k
Modulation formats	QPSK, 16QAM, 64 QAM	QPSK, 16QAM, 64 QAM, 256QAM
Scattered pilots	8% of total	1%, 2%, 4%, 8% of total
Continual pilots	2.6% of total	0.35% of total
Error correction	Convolutional Coding + Reed Solomon	LDPC + BCH
	1/2, 2/3, 3/4, 5/6, 7/8	1/2, 3/5, 2/3, 3/4, 4/5, 5/6
Guard interval	1/4, 1/8, 1/16, 1/32	1/4, 19/128, 1/8, 19/256, 1/16, 1/32, 1/128

While DVB-T2 represents the next evolution for digital terrestrial television, it is planned to operate it alongside the current DVB-T standard for many years and evolve the changeover to DVB-T2.

This evolution should occur in much the same way that has occurred between DVB-S and DVB-S2.

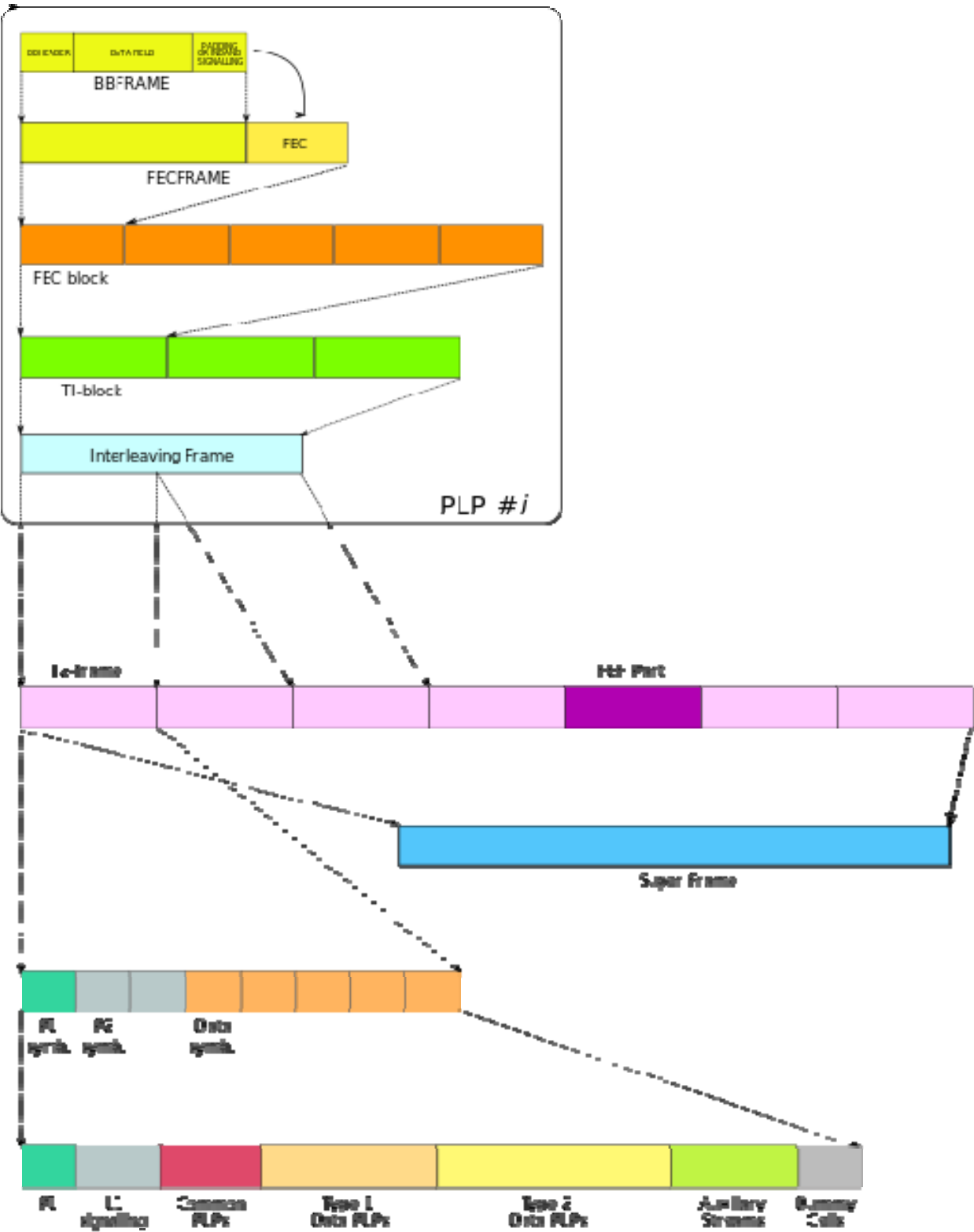
As DVB-T2 offers additional facilities, it will enable the broadcasters the possibility of offering new and captivating services to ensure that they are able to keep their viewers. Building on the success of the existing digital television services, DVB-T2 is bound to see a significant level of take-up over the coming years.

System differences with DVB-T

The following table is a comparison of available modes in DVB-T and DVB-T2.

Parameter	DVB-T	DVB-T2
Input Interface	Single Transport Stream (TS)	Multiple Transport Stream and Generic Stream Encapsulation (GSE)
Modes	Constant Coding & Modulation	Variable Coding & Modulation
Forward Error Correction (FEC)	Convolutional Coding + Reed Solomon 1/2, 2/3, 3/4, 5/6, 7/8	LDPC + BCH 1/2, 3/5 , 2/3, 3/4, 4/5 , 5/6, 6/7, 8/9
Modulation	OFDM	OFDM
Modulation Schemes	QPSK, 16QAM, 64QAM	QPSK, 16QAM, 64QAM, 256QAM
Guard Interval	1/4, 1/8, 1/16, 1/32	1/4, 19/128 , 1/8, 19/256 , 1/16, 1/32, 1/128
Discrete Fourier transform (DFT) size	2k, 8k	1k , 2k, 4k , 8k, 16k , 32k
Scattered Pilots	8% of total	1% , 2% , 4% , 8% of total
Continual Pilots	2.6% of total	0.35% of total
Physical Layer Pipes	no	yes

For instance, a UK MFN DVB-T profile (64-QAM, 8k mode, coding rate 2/3, guard interval 1/32) and a DVB-T2 equivalent (256-QAM, 32k, coding rate 3/5, guard interval 1/128) allows for an increase in bit rate from 24.13 Mbit/s to 35.4 Mbit/s (+46.5%). Another example, for an Italian SFN DVB-T profile (64-QAM, 8k, coding rate 2/3, guard interval 1/4) and a DVB-T2 equivalent (256-QAM, 32k, coding rate 3/5, guard interval 1/16), achieves an increase in bit rate from 19.91 Mbit/s to 33.3 Mbit/s (+67%).



The uptake of DVB-T2

When the digital terrestrial HDTV service Freeview HD was launched in December 2009, it was the first DVB-T2 service intended for the general public. As of November 2010, DVB-T2 broadcasts were available in a couple of European countries.

The earliest introductions of T2 have usually been tied with a launch of high-definition television. There are however some countries where HDTV is broadcast using the old DVB-T standard with no immediate plans to switch those broadcasts to DVB-T2. Among countries using DVB-T for nationwide broadcasts of HDTV are France, Ireland, Italy, Norway, Denmark, Spain, and Taiwan. These are usually using MPEG4.

Australia started broadcasting HD content over DVB-T with MPEG2, although in 2015 some Australian broadcasters switched to MPEG4.

DVB-T2 trials launched in Australia March 2018

<https://dvb.org/news/dvb-t2-trials-launched-in-australia/>



“While our current platform has many years of life in it, this trial is about planning for our long-term future”, said Bridget Fair, CEO of Free TV Australia with reference to this week’s announcement of DVB-T2 trials. While lab tests are already under way, wider trials encompassing transmission sites across Sydney will run from April to June 2018.

Australia’s DVB-T network, which uses MPEG-2 video coding, is very well established, having launched as early as 2001. Analogue switch-off was completed in 2013. In 2016, 97% of television households could receive digital terrestrial television (DTT) and 95% could receive HD services over DTT.

A path to DVB-T2?

DVB-T2 is being considered as a technology to replace DVB-T for television delivery in Australia in the medium term. Such a decision would be highly significant, as Australia is seen as a trendsetter for the Asia Pacific region. The aim of the trial is to assess the performance of DVB-T2 and new compression technologies in the Australian environment.

The trial will be led by Free TV and Broadcast Australia, with broadcasters SBS and ABC also actively participating. Technical equipment will be supplied by several of DVB Members, among them ENENSYS, Rohde & Schwarz, Teamcast and TRedess.

Broadcast Australia CEO Peter Lambourne said: “This trial is an important part of ensuring that when the time is right, the terrestrial television platform is ready for the next stage of its evolution and that it can deliver the best possible viewing experience.”

~Sourced from various internet sites

AMATEUR RADIO TELEVISION VK3RTV TUESDAY NIGHT NETS

For a few months now the Melbourne ATV community meet for an informal ATV Net starting 7.30pm every Tuesday night.

Net control is usually Neil VK3BCU.

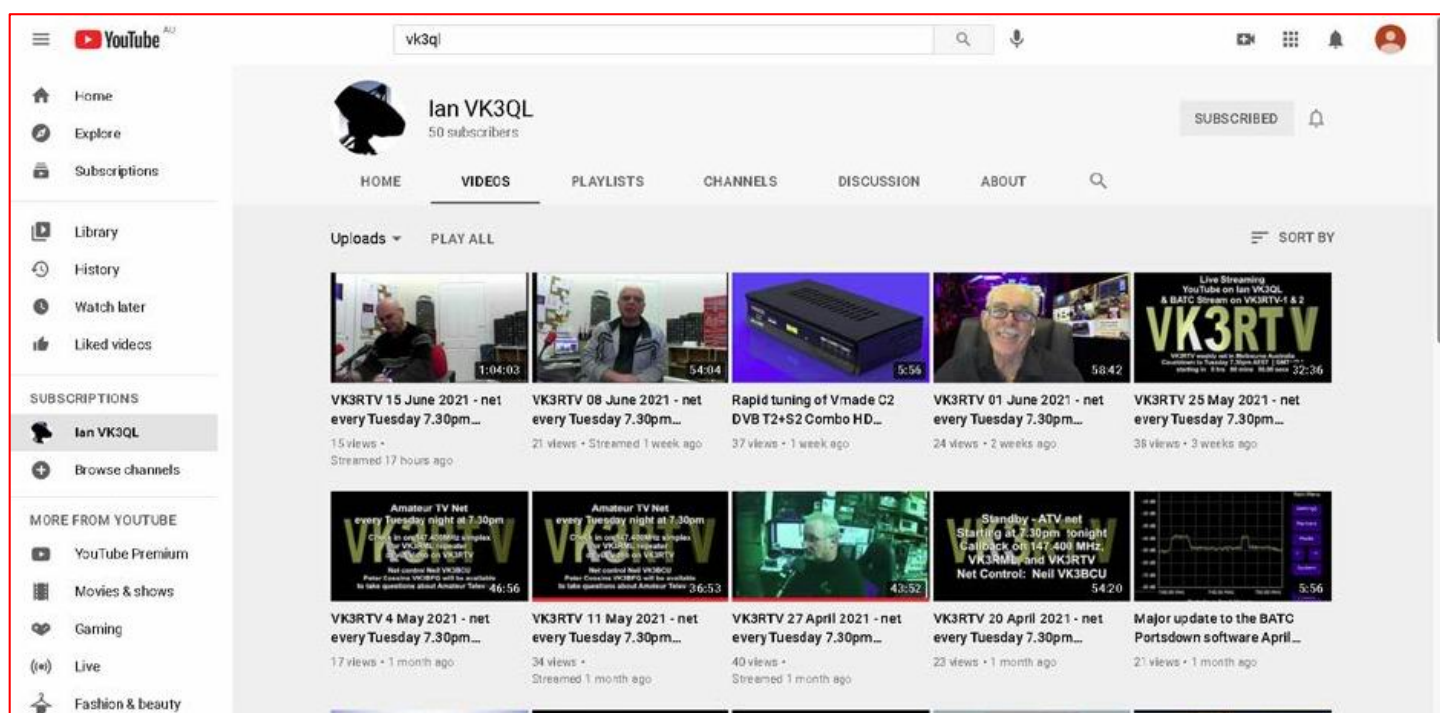
Ian VK3QL captures the recordings and posts them to his YouTube channel at VK3QL.

This can be found at https://www.youtube.com/channel/UCxPw_E-C0Ddc0FIKdjPnuew

Or just type on VK3QL in the YouTube search bar.

You can watch any Tuesday night ATV Net 'on demand' via Ian's YouTube channel or via the BATC live stream at either <https://batc.org.uk/live/vk3rtv1> or <https://batc.org.uk/live/vk3rtv2>

Ian uses VMix, puts up a professional production, he must spend some time getting it all ready each week.



VK3QL YouTube Channel

For those outside of the area to receive VK3RTV, the streaming on either YouTube or the BATC (British Amateur Television Club) website, allows all NEVARC members to watch via the internet.

Presentations feature anything from news of experiments, projects that have been built with the results, clips of ham radio news found online, cheap handy items found on EBay, general news and opinions of gear and other stuff of interest, usually to do with transmitting television.

The good thing is everyone shares ideas and will tell others of good deals found online while they are still available. Quite a few check-in just watching, as the Net is a regular time, this allows a time to tune set top boxes, for those without transmission ability, as you know the VK3RTV repeater will be on air.

~Mick VK3CH

THE ULTIMATE ATV NET --- ANNUAL DATV QSO PARTY



The annual DATV QSO Party will be held on Friday 27th August and Saturday 28th August, Eastern Australian Time.

Friday night will again be a VK occasion with stations working through their local repeaters as a priority to maximize the use of amateur radio.

Saturday here will be Friday evening in the US and as usual we will start with stations more to the east and work our way over to the west coast.

Saturday evening here it is possible to work into the UK if I can find any stations who may be interested.

I will again be looking for Anchors to co-ordinate where there are numbers of amateurs wishing to participate in specific areas. I will approach those who have participated in the past to see if they can again assist. Zoom seems to be the universal internet option so I will work towards using that again unless someone can come up with a better option.

VK3RTV Melbourne will be HD by then with Melbourne stations transmitting DVB-S2 up and VK3RTV responding with DVB-T2 down.

This will be before Australian commercial stations have adopted this latest second generation upgrade. (Currently the HD uplink is enabled with a downlink of DVB-T.)

73 Peter VK3BFG

iPhone Jokes

My 7 year old nephew showed me with pride the “telephone” he had just made from a string and two tin cans.

I pulled out my iPhone and said, “That’s nice, but look at what kids your age make in China!”

What do they put in iPhone batteries?

Apple juice.

What’s the difference between an iPhone X and one ounce of gold?

An ounce of gold will still be worth a grand next year.

Why can’t a Samsung be disguised as an iPhone?

Because eventually, its cover would be blown.

Have you seen the new iPhone card trick?

It’s the one where all the jacks disappear.

What is the most common question asked by iPhone users?

“Does anyone have a charger I could use?”

Tesla have announced they are going to build the world’s biggest battery.

Yet it still won’t last a day on an iPhone.

What do you call a fake iPhone

A Phone-y

How do you milk sheep?

With iPhone accessories.

How do you know if someone has an iPhone?

They tell you.



40 Meter Net

7 Days a Week

10am Local time

(East coast)

7.097 MHz LSB

Approximately + or – QRM

Hosted by Ron VK3AHR

“Australia Ham Radio 40 Meter Net”

President, VK2VU, Gary
Vice President, Tom VK3NXT
Secretary, VK2FKLR, Kathleen
Treasurer, Amy



NEVARC CLUB PROFILE

History

The North East Victoria Amateur Radio Club (NEVARC) formed in 2014.
As of the 7th August 2014, Incorporated, Registered Incorporation number A0061589C.
NEVARC is an affiliated club of the Wireless Institute of Australia and The Radio Amateur Society of Australia Inc.

Meetings

Meetings details are on the club website, the Second Sunday of every month, check for latest scheduled details.
Meetings held at the Belviour Guides Hall, 6 Silva Drive West Wodonga.
Meetings commence with a BBQ (with a donation tin for meat) at 12pm with meeting afterwards.
Members are encouraged to turn up a little earlier for clubroom maintenance.
Call in Via VK3RWO, 146.975, 123 Hz tone.

VK3ANE NETS

HF

7.097 MHz 7 Days a Week - 10am Local time - Australia Ham Radio 40 Meter Net
3.622 MHz Wednesday - 8.30pm Local time

Benefits

To provide the opportunity for Amateur Radio Operators and Short Wave Listeners to enhance their hobby through interaction with other Amateur Radio Operators and Short Wave Listeners. Free technology and related presentations, sponsored construction activities, discounted (and sometimes free) equipment, network of likeminded radio and electronics enthusiasts. Excellent club facilities and environment, ample car parking.

Website: www.nevarc.org.au

Postal: **NEVARC Secretary**
PO Box 8006
Birallee Park
Wodonga Vic 3690

Facebook: www.facebook.com/nevicARC/

All editors' comments and other opinions in submitted articles may not always represent the opinions of the committee or the members of NEVARC, but published in spirit, to promote interest and active discussion on club activities and the promotion of Amateur Radio.

Contributions to NEVARC News are always welcome from members.

Email attachments of Word™, Plain Text, Excel™, PDF™ and JPG are all acceptable.

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Please include a stamped self-addressed envelope if you require your submission notes returned.

Email attachments not to exceed 5 Mb in file size. If you have more than 5 Mb, then send it split, in several emails to us.

Attachments of (or thought to be) executable code or virulently affected emails will not be opened.

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Other articles credited to outside sources should ask for their permission if they are used.

While we strive to be accurate, no responsibility taken for errors, omissions, or other perceived deficiencies, in respect of information contained in technical or other articles.

Any dates, times and locations given for upcoming events please check with a reliable source closer to the event.

This is particularly true for pre-planned outdoor activities affected by adverse weather etc.

The club website <http://nevarc.org.au> has current information on planned events and scheduled meeting dates.

You can get the WIA News sent to your inbox each week by simply clicking a link and entering your email address found at www.wia.org.au The links for either text email or MP3 voice files are there as well as Podcasts and Twitter. This WIA service is FREE.